

Abnormal Gastric Emptying After Intestinal Transplantation

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BASED on our clinical experience, abnormal gastric emptying was suspected in some of the intestinal allograft recipients. This event was partially confirmed by the conventional barium series.¹ In this study, scintigraphic technique was utilized to evaluate the degree of the gastric emptying in the intestinal transplant patients, whether the stomach was native or part of the transplanted graft.^{2,3}

MATERIALS AND METHODS

Gastric emptying studies were performed in 13 adult intestinal transplant recipients (7 men and 6 women) from September 1992 to October 1993. Of the 13 patients, 5 patients received isolated small bowel grafts (SB), 3 received combined liver and small bowel grafts (SB/L), and 5 received multivisceral grafts (MV), which contained liver, pancreas, stomach, duodenum, and intestine. The test was performed 14 days to 2 years from the time of transplantation, with a median of 4 months. In five patients the test was repeated twice over time. The patient fasted overnight and drugs known to influence gastrointestinal motility were stopped 24 hours prior to the study.

A total of 18 liquid tests and 18 solid tests were performed on separate days. For the liquid test the patients were given 250 mL of Gatorade containing 0.5 mCi of Tc 99m. The amount of isotope remaining in the stomach was determined every minute for 60 minutes using a gamma camera. For the solid test the patients were given a standard meal consisting of 1 oz of roast beef or chicken breast, 3 oz of Eggbeaters, 1 slice of white toast, 8 oz of skim milk, margarine, and jelly, which provide 17 g of protein, 10 g of fat, and 35.5 g of carbohydrate with 300 total calories. The Eggbeater contained 1.0 mCi of Tc 99m sulfur colloid. The amount of isotope remaining in the stomach was determined every 15 to 20 minutes for 60 minutes, and then every 30 minutes for 2 hours. For both tests, the half life (T_{1/2}) of the meal in the stomach was calculated.

RESULTS

SB recipients showed delayed gastric emptying in 40% of the liquid and 20% of the solid studies (Table 1). SB/L recipients showed delayed gastric emptying in 66% of the liquid and 33% of the solid studies. The gastric emptying study that was repeated 6 months later in one of the SB/L recipients graft showed improvement of both the liquid and solid gastric emptying tests. MV patients showed abnor-

Table 1. Gastric Emptying in Intestinal Transplantation Recipients

	T _{1/2} in Liquid Study			T _{1/2} in Solid Study		
	Normal	Delayed	Rapid	Normal	Delayed	Rapid
SB	3	2	0	4	1	0
SB/L	1	2	0	2	1	0
MV	4	0	1	0	1	3
Total	8	4	1	6	3	3

mal gastric emptying in 20% of the liquid and 100% of the solid studies. Fast gastric emptying was persistent in one of the MV recipients up to 18 months after surgery.

DISCUSSION

Delayed gastric emptying was observed in 38% of the intestinal allograft recipients studied, which improved over time in some of the serially studied cases. The underlying cause of such morbid events could be related to gut denervation or disturbance of the enteric hormones. In MV recipients, the allograft stomach, with pyloroplasty or pyloromyotomy, may explain the high incidence of rapid gastric emptying. Further studies are certainly required to identify the exact mechanism of these observations, which may help to improve the clinical management of these unique intestinal allograft recipients.

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